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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,150	07/30/2001	Pascal H. Huat	062891.0612	2976

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EXAMINER
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LERNER, MARTIN

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/918,150

Applicant(s)

HUART ET AL.

Examiner

Martin Lerner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 to 7, 9 to 16, 18 to 25, 27 to 34, 36 to 41 is/are pending in the application.
- 4a) Of the above claim(s) 7, 21 to 25, 27 to 34, 36 to 38, and 40 to 41 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 1 to 6, 10 to 16, 19 to 20, and 39 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicants' election with traverse of Group I, Claims 1 to 6, 10 to 16, 18 to 20, and 39, in the reply filed on 22 June 2005 is acknowledged. The traversal is on the grounds that Group III, Claim 9, should be examined with Group I, Claims 1 to 6, 10 to 16, 18 to 20, and 39.

Applicants' Response to the Restriction Requirement states that the election is of Group I, Claims 1 to 6, 10 to 16, 18 to 20, and 39, and Group III, Claim 9. Applicants submit that Groups I and III are linked by Claim 18, as "the restriction requirement as to the linked inventions shall be withdrawn and any claims depending from or otherwise including all the limitations of the allowable claims depending from or otherwise including all of the limitation of the allowable linking claims will be entitled to examination" upon allowance of the linking claim. Applicants' Response is treated as an election with traverse of Group I, with reasons for insisting that examination should also be performed with respect to Group III. Ordinarily, Group III would not be examined unless the linking claim is allowed. Here, however, Claim 18, the linking claim, in fact, is found to be allowable. Thus, Group III, Claim 9, is rejoined, and is examined with Group I, Claims 1 to 6, 10, to 16, 18 to 20, and 39.

Claims 7, 21 to 25, 27 to 34, 36 to 38, and 40 to 41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

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Applicants timely traversed the restriction (election) requirement in the reply filed on 22 June 2005.

Linking claim 18 is allowed. Since the restriction requirement among inventions I and III, as set forth in the Office action mailed on 26 May 2005, was conditioned on the nonallowance of the linking claim, the restriction requirement as to the linked inventions is hereby withdrawn. Claim 9, is hereby rejoined and fully examined for patentability under 37 CFR 1.104. In view of the withdrawal of the restriction requirement as to the linked inventions, Applicants are advised that if any claims depending from or including all the limitations of the allowable linking claims be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

This application contains claims 7, 21 to 25, 27 to 34, 36 to 38, and 40 to 41 drawn to an invention nonelected with traverse in the reply filed 22 June 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 4, 6, 11 to 13, 15, 16, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Shepard* in view of *Liao et al.* ("*Adaptive recovery techniques for real-time audio streams*").

Concerning independent claims 1 and 39, *Shepard* discloses an apparatus and method for error concealment, comprising:

"receiving a plurality of first voice samples communicated from a source" – an analog audio signal 101 is received at a microphone, and then converted into a digital signal; the resulting digital signal 102 given by an audio stream is grouped into a number of data packets ("first samples") (column 3, lines 5 to 17: Figure 1c); audio data is speech ("voice samples") from AM/FM radio transmissions or teleconferences at meetings (column 1, lines 9 to 24; column 1, lines 58 to 67);

"receiving a voice parameter communicated from the source, the voice parameter characterizing the first voice samples" – a fundamental pitch period ("a voice

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parameter”) of a packet is determined, encoded as a preamble to a data packet, and transmitted (column 3, line 62 to column 4, line 9: Figure 2: Steps 203 and 204); a packet with a fundamental pitch period in a preamble is received (column 4, lines 12 to 13: Figure 3);

“determining a loss of a packet communicated from the source” – when a packet is received, a determination is made as to whether that packet has lost or dropped any portion of its data (column 4, lines 12 to 16: Figure 3: Step 301);

“generating a plurality of second voice samples using the first voice samples and the voice parameter” – if it is determined that an error has occurred, the fundamental pitch period is retrieved from the preamble of the previous data packet; a corresponding amount of substitute data is synthesized by replicating the fundamental pitch period of the previous packet to fill in the data that was dropped or lost during transmission (column 4, lines 25 to 52: Figure 3: Steps 302 to 306).

Concerning independent claims 1 and 39, *Shepard* discloses a cross-fade for rendering smoother the transition between boundaries of data by averaging values of sample points (column 4, lines 53 to 65: Figure 4), but does not provide for “using an attenuation factor that increases with each subsequent packet loss.” However, *Liao et al.* teaches a packet-loss recovery technique for audio streams involving pitch waveform replication, where pitch segments are adjusted. (Pages 817 to 818) Specifically, an amplitude adjustment of a reconstructed packet is provided from a start point  $x[start]$  to an end point  $x[end]$  in the reconstructed packet by forward amplitude adjustment (FWAA) and backward amplitude adjustment (BWAA), whereby an amplitude factor ( $AF$

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–  $AP/(AP * n)$  decreases in a forward direction and an amplitude factor  $(AP - AF)/(AF * n)$  decreases in a backward direction. A decreasing amplitude adjustment is equivalent to an increasing attenuation factor because  $factor * i$  increases as  $i$  increases. (Pages 819 to 820: Figure 5) The objective is to adjust amplitude to ensure continuity inside the packet as well as to neighboring packets. (Page 819) It would have been obvious to one having ordinary skill in the art to provide an attenuation factor increasing with each subsequent packet as taught by *Liao et al.* in an apparatus and method for error concealment of an audio stream of *Shepard* for the purpose of providing continuity inside and between packets.

Concerning independent claim 11, *Shepard* discloses an apparatus and method for error concealment, further comprising receiving a plurality of packets “for each of the sources” as a plurality of AM/FM radio transmissions or a plurality of participants in a teleconferencing meeting (column 1, lines 9 to 24; column 1, lines 58 to 67).

Concerning claim 2, *Shepard* discloses:

“converting the first and second voice samples into a speech signal” – a digital-to-analog converter 512 converts the digital data into an analog signal (column 5, lines 25 to 26: Figure 5);

“presenting the speech signal to a user” – an analog signal is played back through speaker 514 (column 5, lines 27 to 28: Figure 5).

Concerning claims 3, 4, 12, and 13, *Shepard* discloses a fundamental pitch period of a packet is determined, encoded as a preamble to a data packet, and transmitted (column 3, line 62 to column 4, line 9: Figure 2: Steps 203 and 204); in the preferred embodiment, an autocorrelation function is applied to a data packet, where a first "peak" of the autocorrelation result usually signifies the fundamental pitch period (column 4, lines 5 to 8).

Regarding claims 6, 15, and 16, *Shepard* discloses a fundamental pitch period ("the first voice parameter") of a packet is determined, encoded as a preamble to a data packet, and transmitted (column 3, line 62 to column 4, line 9: Figure 2: Steps 203 and 204); an exemplary packet might contain 1,500 samples (column 4, lines 32 to 33); thus, a pitch period is placed in the same packet as voice samples ("in a single packet generated at the source"); however, at the same time, a fundamental pitch from a previous packet is obtained to replicate data that is dropped (column 4, lines 28 to 32); thus, a fundamental pitch ("the voice parameter") is received in a previous packet ("a first packet") and samples ("the first voice samples") are received in a later packet ("a second packet separate from the first packet").

Claims 5, 10, 14, and 19 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Shepard* in view of *Liao et al.* as applied to claims 1 and 11 above, and further in view of *Kung et al.*

Concerning claims 5 and 14, *Shepard* discloses an apparatus and method for error concealment of an audio stream in a transfer and interface of digital data as part of



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an IP protocol, a User Datagram Protocol (UDP), and a Transmission Control Protocol (TCP), but does not expressly disclose at least one of a G.711 audio format or a linear audio format. However, *Kung et al.* teaches packetized data for voice over IP telephony (VoIP) (column 5, lines 53 to 65), where an appropriate encoding format of G.711 is employed for a file transfer protocol (column 8, lines 32 to 44). Generally, G.711 is a well known encoding standard for voice. *Kung et al.* provides for communication between users in diverse communications systems for providing broadband including an Internet Protocol Telephony Network. (Column 1, Lines 8 to 12) It would have been obvious to one having ordinary skill in the art to provide a G.711 audio format as taught by *Kung et al.* in an apparatus and method for error concealment of an audio stream of *Shepard* for the purpose of accommodating Voice over Internet Protocol (VoIP) between diverse communication systems.

Concerning claims 10 and 20, *Kung et al.* teaches negotiating and reserving bandwidth for a multimedia call (column 15, lines 1 to 35).

Concerning claim 19, *Kung et al.* teaches a conference server for multiplexing and demultiplexing information packets ("mixing first and second voice samples from more than one of the sources to generate a mixed signal") during conference calls from a plurality of users (column 11, lines 7 to 33).

### ***Allowable Subject Matter***

Claim 9 is allowed.

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Applicants' argument, filed 18 March 2005, is persuasive that the prior art does not disclose or suggest "determining a start point in a buffer storing voice samples." A buffer for storing samples may be implicit in *Shepard*, but there is no disclosure of determining a start point in a buffer for copying samples. Determining a proper start point in a buffer for copying samples would have the advantage of providing that samples are copied by an addressing scheme that ensures that successfully received voice samples are used to reconstruct voice information. See Specification, Page 13, Lines 13 to 30.

### ***Response to Arguments***

Applicants' arguments filed 18 March 2005 have been fully considered but they are not persuasive.

Regarding independent claims 1, 11, and 39, Applicants' argue that *Shepard* fails to disclose of "using an attenuation factor that increases with each subsequent packet loss." Applicants indicate that they have amended independent claims 1, 11, and 39 to include the limitations of claim 8. Applicants also state that the combination of *Shepard*

and *Liao et al.* does not disclose, teach, or suggest “using an attenuation factor that increases with each subsequent packet loss.” This position is not convincing.

Applicants’ argument that the combination of *Shepard* and *Liao et al.* does not disclose, teach, or suggest “using an attenuation factor that increases with each subsequent packet loss” amounts to merely allegation of patentability without providing reasons for traversal. *Liao et al.* teaches the limitation of “using an attenuation factor that increases with each subsequent packet loss”, as set forth in the prior rejection of claims 8 and 17, in the Official Action mailed 20 December 2004.

Applicants’ Specification provides only a brief disclosure of the limitation of “using an attenuation factor that increases with each subsequent packet loss” at Page 15, Line 27 to Page 16, Line 2.

*Liao et al.* is concerned with packet loss recovery techniques. One of *Liao et al.*’s packet loss recovery techniques involves adjusting the amplitude of reconstructed packets. An amplitude is adjusted from a start point to an end point of a reconstructed packet. The amplitude is adjusted downward from a start point to an end point by a factor  $(AF - AP)/(AP \cdot n)$ . The amplitude decreases with each subsequent packet from a start point of reconstruction. (Page 819: Right Column; Figure 4) An amplitude adjustment that decreases is equivalent to an attenuation factor that increases with each subsequent packet loss. The objective to is deal with the problem of pitch segment discontinuity to prevent audible noise. (Page 818) Thus, *Liao et al.* provides a motivation to adjust an amplitude of each succeeding packet.

Therefore, the rejections of claims 1 to 4, 6, 11 to 13, 15, 16, and 39 under 35 U.S.C. 103(a) as being unpatentable over *Shepard* in view of *Liao et al.*, and of claims 5, 10, 14, and 19 to 20 under 35 U.S.C. 103(a) as being unpatentable over *Shepard* in view of *Liao et al.*, and further in view of *Kung et al.*, are proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone

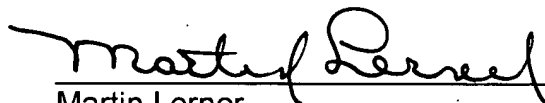
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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ML

7/21/05

A handwritten signature in black ink, appearing to read "Martin Lerner", written over a horizontal line.

Martin Lerner  
Examiner  
Group Art Unit 2654